REMARKS

Claims 1-42 are presented for consideration, with claims 1, 15, 31, 41 and 42 being independent.

The independent claims and selected dependent claims have been amended to further distinguish Applicant's invention from the cited art. In addition, editorial changes have been made to claims 14 and 40.

Claims 14 and 40 were objected to because of minor informalities identified in paragraph 1 of the Office Action. In view of the amendments to the claims 14 and 40 as shown above, reconsideration and withdrawal of the objection is respectfully requested.

Claims 1, 2, 15, 16, 29, 41 and 42 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Isaksson (WO '548). Claims 30-32, 38 and 39 are rejected as allegedly being obvious over Isaksson in view of Knutson '369. The remaining claims, i.e., dependent claims 3-14, 17-28, 33-37 and 40, are rejected under 35 U.S.C. §103 as allegedly being obvious over Isaksson in view of one or more secondary citations to Knutson, Beauvais '775, Broekhoven '842, Nishida '939 and/or Schuchman '726. These rejections are respectfully traversed.

Applicant's invention as set forth in claim 1 relates to a demodulator for demodulating digital data, and comprises a receiver for receiving a digital signal, a correlator to correlate the digital data signal received from the receiver with a reference training signal to produce a correlation value, and a verification unit to select correlation values above a threshold value. A determining device determines if a fractional sample delay added to a demodulator's symbol sampling timing would improve synchronization timing and calculates the required fractional sample delay, and an implementing device implements the fractional sample delay if it

is determined that it would improve the demodulation synchronization timing. Lastly, a demodulating device demodulates the digital data signal.

As will be appreciated, claim 1 has been amended to include a correlator that produces a correlation value using a reference training signal and a verification unit to select correlation values above a threshold value. In addition, the determining device calculates the required fractional sample delay. Support for the amendments can be found, for example, in Figure 3 and the corresponding disclosure on page 10, line 7 et seq. of the specification.

The primary citation to Isaksson relates to multi-carrier transmission systems using orthogonal carriers. The Office Action asserts that Isaksson includes a receiver, a determining device to determine if a fractional sample delay added to a demodulator symbol sampling timing would improve synchronization timing, and an implementing device to implement the fractional sample delay.

In contrast to Applicant's claimed invention, however, it is respectfully submitted that Isaksson fails to teach or suggest, among other features, a correlator to correlate a digital data signal with a reference training signal to produce a correlation value, and a verification unit to select correlation values above a threshold value. Isaksson also fails to teach or suggest a determining device that not only determines if a fractional sample delay would improve synchronization timing, but calculates the required fractional sample. In Isaksson, a feedback control loop is used to continuously refine the symbol timing. As understood, the feedback control loop uses an auto-correlation technique in which the signal is correlated with itself and also uses a peak position estimator. See, for example, the feedback controllers in Figure 15 and the corresponding description beginning on page 35, line 26. Isaksson does not

use a training sequence to produce a correlation value, and then select correlation values above a threshold value.

Independent claims 15, 41 and 42 have been similarly amended to include production of a correlation value based on a reference training sequence as well as selecting correlation values above a threshold value. Further, claims 41 and 42 now recite that the correlation value is used to determine the amount of fractional sample delay.

It is submitted, therefore, that Isaksson fails to teach or suggest Applicant's claimed invention as set forth in independent claims 1, 15, 41 and 42. Accordingly, reconsideration and withdrawal of the rejection of claims 1, 2, 15, 16, 29, 41 and 42 under 35 U.S.C. §102(b) is respectfully requested.

Independent claim 31 relates to a computer executable code for implementing a method for demodulating digital data, and has been amended along the same lines as claim 1. Accordingly, the discussion of Isaksson as set forth above also applies to this claim.

The secondary citation to Knutson relates to a timing recovery system and was cited for its teaching of a digital signal processing system. Knutson fails, however, to compensate for the deficiencies in Applicant's claimed invention as discussed above. Accordingly, the proposed combination of Isaksson and Knutson, even if proper, still fails to teach or suggest Applicant's claimed invention. Reconsideration and withdrawal of the rejection of claims 30-32, 38 and 39 under 35 U.S.C. §103 is therefore respectfully requested.

The secondary citation to Beauvais relates to a correlator device and was cited for its teaching of exploiting the geometry of a correlation curve to determined if a fractional sample delay would improve the demodulation synchronization timing. It is submitted, however, that Beauvais fails to compensate for the deficiencies in Isaksson as discussed above with respect

to Applicant's independent claims, specifically with respect to using a reference training sequence to produce a correlation value, selecting values above a threshold value, and calculating a required fractional sample delay.

Therefore, without conceding the propriety of combining Isaksson and Beauvais in the manner proposed in the Office Action, such a combination still fails to teach or suggest Applicant's claimed invention. Reconsideration and withdrawal of the rejection of claims 3-7 and 17-21 under 35 U.S.C. §103 is thus respectfully requested.

The secondary citation to Broekhoven relates to a digital spread spectrum receiver and was cited for its teaching of coefficients to implement a fractional sample display. Nishida relates to an individual guidance system for aircraft and was cited for its teaching of a VDL receiver. Schuchman relates to an air traffic surveillance and communication system and was cited for its teaching of sampling synchronization of an aircraft transceiver. These secondary citations, however, fail individually or even as a group to compensate for the deficiencies in Isaksson as set forth above with respect to Applicant's independent claims.

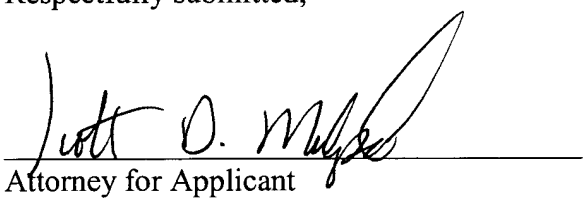
Accordingly, without conceding the propriety of combining the art in the various ways proposed in the Office Action, such combinations still fail to teach or suggest Applicant's claimed invention. Therefore, reconsideration and withdrawal of the rejections of the remaining claims under 35 U.S.C. §103 are respectfully requested.

Therefore, it is submitted that Applicant's invention as set forth in independent claims 1, 15, 31, 41 and 42 is patentable over the cited art. In addition, dependent claims 2-14, 16-30 and 32-39 set forth additional features of Applicant's invention. For example, claims 6, 7, 21, 22, 36 and 37 recite that the fractional sample delay is determined based on the selected correlation values. Independent consideration of the dependent claims is respectfully requested.

In view of the foregoing, reconsideration and allowance of this application is deemed to be in order and such action is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to Honeywell's address given below.

Respectfully submitted,



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